DOCKET NO.: 193413US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

#16 6/6/02 1C

IN RE APPLICATION OF:	:
Peter FICKEISEN, et al.	: GROUP ART UNIT: 1714
SERIAL NO.: 09/582,216	:
FILED: July 20, 2000	: EXAMINER: C. SHOSHO

FOR: FLOORING ADHESIVES

APPEAL BRIEF

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

This is an appeal from the Examiner's Final Rejection dated September 20, 2001, of Claims 9-35. A Notice of Appeal and a Request for a three-month extension of time was timely filed on March 20, 2002.

I. REAL PARTY IN INTEREST

The real party in interest is BASF Aktiengesellschaft of Ludwigshafen, Germany, by virtue of the assignment recorded October 20, 2000, at Reel/Frame 011251/0190.

II. RELATED APPEALS AND INTERFERENCES

Appellants wish to draw attention to related Application, Serial No. 08/687,427, filed August 9, 1996. An Appeal Brief was filed October 21, 1998. The Board of Appeals reversed the Examiner's rejections in this application. A Notice of Allowance was issued on

February 1, 2002. Appellants, Appellants' legal representative and their assignee are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

The appealed claims are Claims 9-35, the only claims in the above-identified application.

IV. STATUS OF THE AMENDMENT FILED UNDER 37 C.F.R. §1.116

The Amendment under 37 C.F.R. §1.116 filed February 15, 2002, was entered, as so stated by the Examiner in the Advisory Action of March 6, 2002.

V. THE APPEALED CLAIMS

A copy of the appealed claims is submitted in the attached Appendix I.

VI. SUMMARY OF THE INVENTION

The present invention provides an aqueous composition that can be used as a floor adhesive and has good wet bonding capacity while having a low content of binder (present application, page 2, lines 1-9). The aqueous composition comprises

A) 10 to 50% by weight of a polymer having a gel content of 5 to 40% by weight and a number-average molecular weight, Mn, of a tetrahydrofuran-soluble fraction of less than 30,000; and

wherein said polymer comprises from 60 to 100% by weight of a C_1- to C_{20}-alkyl (meth)acrylate or mixture of at least two C_1- to C_{20}-alkyl (meth)acrylates, based on a total

weight of said polymer; and

B) 50 to 90% by weight of a filler;

wherein the amount of said polymer and the amount of said filler are based on the weight sum of the polymer and of the filler; and

wherein said filler is selected from the group consisting of a chalk having an average particle diameter of from 2 to 50 μm, a quartz flour having an average particle diameter of from 3 to 50μm and a combination thereof.

Claim 9 finds basis at page 4, lines 4 and 17; and at page 5, lines 40-43 of the specification and in Claim 1 as originally filed.

Claim 10 finds basis at page 2, lines 37-40 of the specification.

Claim 11 finds basis at page 2, lines 37-40 of the specification.

Claim 12 finds basis at page 2, lines 16-21 of the specification and in Claim 2 as originally filed.

Claim 13 finds basis at page 2, lines 21 and 22 of the specification.

Claim 14 finds basis at page 2, lines 31-35 of the specification.

Claim 15 finds basis at page 3, lines 28-33 of the specification.

Claim 16 finds basis at page 3, line 25 of the specification.

Claim 17 finds basis at page 3, line 26 of the specification.

Claim 18 finds basis at page 3, lines 26 and 27 of the specification.

Claim 19 finds basis at page 4, lines 1-4 of the specification.

Claim 20 finds basis in Claim 3 as originally filed.

Claim 21 finds basis in Claim 4 as originally filed.

Claim 22 finds basis in Claim 5 as originally filed.

Claim 23 finds basis at page 3, lines 37-40 of the specification.

Claim 24 finds basis at page 3, lines 37-40 of the specification.

Claim 25 finds basis at page 3, lines 37-40 of the specification.

Claim 26 finds basis at page 5, line 45 to page 6, line 1 of the specification.

Claim 27 finds basis at page 7, lines 29-35 of the specification and by Claim 6 as originally filed.

Claim 28 finds basis at page 7, lines 29-35 of the specification.

Claim 29 finds basis in Claim 6 as originally filed and at page 7, lines 26 and 37-39 of the specification.

Claim 30 finds basis at page 7, lines 29-35 of the specification.

Claim 31 finds basis in Claim 7 as originally filed and at page 7, lines 26 and 37-39 of the specification.

Claim 32 finds basis at page 7, lines 34-35 of the specification.

Claim 33 finds basis by Claim 7 as originally filed and at page 7, lines 26 and 37-39 of the specification.

Claim 34 finds basis at page 7, lines 34-35 of the specification.

Claim 35 finds basis in Claim 8 as originally filed.

VII. THE ISSUE OF THIS APPEAL

1. Whether Claims 9-35 are anticipated under 35 U.S.C. §102(b) by CA 2,182,743?

2. Whether Claims 9-14 and 20 are obvious under 35 U.S.C. §103(a) over Kawashima et al in view of CA 2,182,743?

3. Whether Claims 9-10, 12-17, 21, 26, 27, 29 and 35 are obvious under 35 U.S.C. §103(a) over Tsuruoka et al?

VIII. GROUPING OF THE CLAIMS

Issue 1: Group I: Claims 9-35

Issue 2: Group I: Claims 9-14, 20

Issue 3: Group I: Claims 9-10, 12-17, 21, 26, 27, 29 and 35

IX. ARGUMENTS IN TRAVERSAL OF THE REJECTION

1. Claims 9-35 stand rejected under 35 U.S.C. §102(b) as anticipated by CA 2,182,743.

The criteria for anticipation are as follows:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

Verdegaal Bros. V. Union Oil Co. Of California, 814 F.2d 628.

> "The identical invention must be shown in as complete detail as is contained in the ... claim."

Richardson v. Suzuki Motor Co., 868 F.2d 1226.

> "The elements must be arranged as required by the claim."

In re Bond, 910 F.2d 831.

Further, Appellants respectfully direct attention to MPEP 2131.03, which states:

> "When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient

specificity"to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious."

A. Group I: Claims 9-35

Claims 10-35 depend directly or indirectly on independent Claim 9. The present invention as set forth in Claim 9 relates to an aqueous composition. Notably, the polymer of the aqueous dispersion is characterized by a gel content of 5 to 40% by weight and a number-average molecular weight of a tetrahydrofuran-soluble fraction of less than 30,000. In addition, the aqueous dispersion has 50 to 90% by weight of a filler which is a chalk having an average particle diameter of from 2 to 50 μm, a quartz flour having an average particle diameter of from 3 to 50μm or a combination thereof.

In contrast, CA 2,182,743 fails to disclose or suggest an aqueous polymer dispersion having the combination of gel content, number-average molecular weight and amount/type of filler as claimed.

All that CA 2,182,743 provides is a general disclosure of an aqueous composition, containing water and 20-99% by weight of a polymer having a glass transition temperature below -25°C and 1-80% by weight of a filler (CA 2,182,743, page 1, lines 4-10). The reference further discloses the properties of the polymer of the aqueous composition as follows:

> "The number average molecular weight Mn of the polymer is preferably greater than 10,000, in particular greater than 20,00, particular preferably greater than 30,000,.....the proportion of the insoluble components in the polymer is preferably from 0-90, particularly preferably 20-70, very particularly preferably from 40 to 60, % by weight, based on the polymer." (CA 2,182,743, page 3, lines 22-31).

Furthermore, the reference discloses that a preferable amount of filler is 30 to 70 % by weight and particularly preferably are 40 to 60% by weight (CA 2,182,743, page 2, lines 1-2).

Thus, as recognized by the Examiner in the Final Office Action at page 4, lines 3-8, there is no disclosure in CA 2,182,743 of the number average molecular weight of a tetrahydrofuran-soluble fraction of the polymer. However, for a claim to be anticipated, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Here, the number average molecular weight of a tetrahydrofuran-soluble fraction of the polymer is simply not disclosed. The Examiner argues that the polymers of CA 2,182,743 inherently have the claimed gel content. Even if this was the case, Appellants content that CA 2,182,743 does not disclose the claimed invention with "sufficient specificity" because there is no disclosure of the claimed combination of gel content, number-average molecular weight and amount/type of filler. The elements are not at all arranged as required by the claim. The reference regards an aqueous composition having a solids content of 40 to 60 % by weight, a number-average molecular weight greater than 30,000(without disclosing Mn of the tetrahydrofuran soluble fraction of the polymer), and an amount of filler of 40-60% by weight as being particularly advantageous. This however, is very different from the claimed aqueous dispersion having a gel content of 5 to 40% by weight and a number-average molecular weight of a tetrahydrofuran-soluble fraction of less than 30,000, and 50 to 90% by weight of a filler.

Furthermore, CA 2,182,743 lacks specific Examples falling within the claimed ranges. In fact, Examples 1-4 of CA 2,182,743 do not exemplify polymers having the claimed gel content and the claimed number-average molecular weight (Mn) of the polymers. Furthermore, Examples 1A-4A do not exemplify a composition having a quartz flour filler or a combination of a chalk and a quartz flour (CA 2,182,743, Examples 1A to 4A).

The Rule 132 Declaration, submitted in this application on February 15, 2002, shows the gel content and the number average molecular weight of the polymers of Examples 1 to 4

of CA 2,182,743. The gel content and molecular weight of the soluble fraction were determined according to the procedure given in the present application.

The results are as follows:

CA 2,182,743, Polymer of example #	gel content %	Molecular weight Mn g/mol (Refractive index signal)
1	15±1	43000±1000
2	57±1	30500±500
3	45±2	41000±3000
4	55±1	26500±500

Clearly, none of the Examples of CA 2,182,743 has the required combination of gel content of 5 to 40% and Mn of less than 30,000. In Example 1, the molecular weight is outside the required range. In Examples 2 and 3, the gel content and the molecular weight are outside the required range. In Example 4, the gel content is outside the required range.

Furthermore, the Examples of the present invention demonstrate that the claimed aqueous composition quickly develops a high wet bonding capacity as shown in Table 3 on page 10 of the specification. This can only be achieved using a polymer having the claimed combination of gel content and molecular weight.

Table 3 of the present application has been reproduced below. The tested dispersions have the following gel contents:

Comparison Example 1: **54%**;

Comparison Example 2: **70%**;

Comparison Example 3: **68%**;

Example 4 (according to present invention): **15%**.

Table 3

	Peel values N/mm		WBC N/5 cm			
	10 min	30 min	10 min	15 min	20 min	30 min
1 (for comparison)	0.34	0.24	4	7	9	8
2 (for comparison)	0.91	0.07	2	5	11	22
3 (for comparison)	1.38	0.18	4	10	19	34
4 (according to invention)	1.22	0.24	12	26	44	49

The wet bonding capacity of Example 4, having the required gel content, is already high after 10 min, when a value of 12 N/5 cm is achieved. The wet bonding capacity of the Comparison Examples, however, is only in the order of 2-4 N/5 cm after 10 minutes. Thus, after 10 min., the wet bonding capacity is about 3 to 6 times lower in the Comparison Examples.

Furthermore, the wet bonding capacity of Example 4, having the claimed gel content of 5 to 40%, quickly increases and reaches a value of 49 N/5cm after 30 min. In contrast, the values of the Comparison Examples, having gel contents outside the scope of the present invention, increase only slowly and reach only low values of 8-34 after 30 min. Thus, even after 30 min. The wet bonding capacity of the Comparison Examples is significantly lower than the wet bonding capacity of the Examples according to the present invention.

Even though the molecular weight of the polymers of the Comparison Examples fall within the claimed range, a superior wet bonding capacity can only be achieved if also the gel content is within the claimed range. Thus, the present invention is superior based on the combination of the claimed gel content and molecular weight.

Accordingly, Appellants submit that it is reasonable to conclude that the claimed

range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. In addition, Appellants submit that the unexpected results render the claims unobvious.

Thus, Claims 9-35 are Not Anticipated by CA 2,182,743 within the meaning of 35 U.S.C. §102(b). In addition, Claims 9-14 and 20-35 are Not Obvious over CA 2,182,743 within the meaning of 35 U.S.C. §103(a).

2. Claims 9-14 and 20 stand rejected under 35 U.S.C. §103(a) over Kawashima et al in view of CA 2,182,743.

A. Group I: Claims 9-14, 20

Claims 10-14, 20 depend on independent Claim 9. The present invention as set forth in Claim 9 relates to an aqueous composition. The aqueous dispersion as claimed in Claim 9 has 50 to 90% by weight of a filler which is a chalk having an average particle diameter of from 2 to 50 μm, a quartz flour having an average particle diameter of from 3 to 50μm or a combination thereof.

Kawashima et al do not disclose or suggest the claimed combination of gel content, number-average molecular weight and amount/type of filler. Specifically, Kawashima et al fail to disclose or suggest the claimed fillers and their particle size. This has been recognized by the Examiner (Final Office Action, page 5, lines 8-10).

Kawashima et al disclose an aqueous coating composition having a hollow polymer particle having at least two polymer layers and inter alia a filler (Kawashima et al, col. 4, line 65 to col. 5, line 5; col. 22, line 40). However, there is no disclosure or suggestion of a filler selected from the group consisting of a chalk having an average particle diameter of from 2 to 50 μm, a quartz flour having an average particle diameter of from 3 to 50μm and a combination thereof. Even a combination of Kawashima et al with CA 2,182,743 does not

result in a composition having the claimed combination of gel content, number-average molecular weight and amount/type of filler. In addition, the superior properties of the claimed composition have been discussed above.

Thus, Claims 9-14 and 20 are Not Obvious within the meaning of 35 U.S.C. §103(a) Kawashima et al in view of CA 2,182,743.

3. Claims 9-10, 12-17, 21, 26, 27, 29 and 35 stand rejected under 35 U.S.C. §103(a) over Tsuruoka et al.

A. Group I: Claims 9-10, 12-17, 21, 26, 27, 29 and 35

Claims 10, 12-17, 21, 26, 27, 29 and 35 depend directly or indirectly on independent Claim 9. Claims 11, 18-20, 22-25, 28 and 30-34 are free of Tsuruoka et al. Tsuruoka et al do not disclose or suggest the claimed combination of gel content, number-average molecular weight and amount/type of filler. Specifically, Tsuruoka et al fail to disclose or suggest the claimed number average molecular weight of the tetrahydrofuran soluble fraction of the polymer. In fact, the Examiner admits that Tsuruoka et al fails to disclose the claimed number average molecular weight and to exemplify the claimed composition, and she recognizes that the claimed composition cannot be "clearly envisaged" form this reference (Final Office Action, page 7, lines 12-19). In addition, Tsuruoka et al does not provide any motivation whatsoever, to make an aqueous composition as claimed.

Tsuruoka et al disclose a coating composition having a copolymer latex having a gel content of 10-98 wt.% obtained by emulsion polymerization of 20-65% of a conjugated diene, 0.1-10% of a combination of an ethylenically unsaturated monocarboxylic acid and an ethylenically unsaturated dicarboxylic acid, 33-79.5% of another ethylenically unsaturated compound, in the presence of 0.1 to 10 parts by wt. of an α-methylstyrene dimer (Tsuruoka et

al, abstract). However, Tsuruoka et al fail to disclose or suggest the claimed number average molecular weight of the tetrahydrofuran soluble fraction of the polymer. In addition, the superior properties of the claimed composition have been discussed above.

Thus, Claims 9-10, 12-17, 21, 26, 27, 29 and 35 are Not Obvious within the meaning of 35 U.S.C. §103(a) Tsuruoka et al.

X. RELIEF REQUESTED

Reversal of the Examiner's rejection of the appealed claims under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) is requested.

Respectfully submitted,

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APPENDIX I

The appealed claims read as follows:

9. An aqueous composition, comprising:

A) 10 to 50% by weight of a polymer having a gel content of 5 to 40% by weight and a number-average molecular weight, Mn, of a tetrahydrofuran-soluble fraction of less than 30,000; and

wherein said polymer comprises from 60 to 100% by weight of a C_1- to C_{20}-alkyl (meth)acrylate or mixture of at least two C_1- to C_{20}-alkyl (meth)acrylates, based on a total weight of said polymer; and

B) 50 to 90% by weight of a filler;

wherein the amount of said polymer and the amount of said filler are based on the weight sum of the polymer and of the filler; and

wherein said filler is selected from the group consisting of a chalk having an average particle diameter of from 2 to 50 μm, a quartz flour having an average particle diameter of from 3 to 50μm and a combination thereof.

10. The aqueous composition as claimed in Claim 9, wherein said C_1- to C_{20}-alkyl (meth)acrylate is present in an amount of from 80 to 100% by weight in said polymer.

11. The aqueous composition as claimed in Claim 9, wherein said C_1- to C_{20}-alkyl (meth)acrylate is present in an amount of from 90 to 99.8% by weight in said polymer.

12. The aqueous composition as claimed in Claim 9, having 10 to 45% by weight of said polymer and 55 to 90% by weight of said filler.

13. The aqueous composition as claimed in Claim 9, having 60 to 85% by weight of said filler.

14. The aqueous composition as claimed in Claim 9, wherein said polymer comprises at least one monomer unit selected from the group consisting of a C_1-C_{20}-alkyl

(meth)acrylate, a vinyl ester of a carboxylic acid having up to 20 carbon atoms, a vinylaromatic compound having up to 20 carbon atoms, an ethylenically unsaturated nitrile, a vinyl halide and a nonaromatic hydrocarbon having at least 2 conjugated double bonds.

15. The aqueous composition as claimed in Claim 9, wherein said polymer further comprises a monomer unit selected from the group consisting of a C_1-C_{10}-hydroxyalkyl (meth)acrylate, a (meth)acrylamide and its N-C_1-C_4-alkyl-substituted derivative, an ethylenically unsaturated carboxylic acid, a dicarboxylic acid, a monoester of a dicarboxylic acid and an anhydride a dicarboxylic acid.

16. The aqueous composition as claimed in Claim 15, wherein said monomer unit is present in an amount of from 0 to 40% by weight.

17. The aqueous composition as claimed in Claim 15, wherein said monomer unit is present in an amount of from 0 to 20% by weight.

18. The aqueous composition as claimed in Claim 15, wherein said monomer unit is present in an amount of from 0.2 to 10% by weight.

19. The aqueous composition as claimed in Claim 9, wherein the gel content is more than 5% and less than 20% by weight.

20. The aqueous composition as claimed in Claim 9, where the polymer is present in the form of an aqueous dispersion with a concentration of from 40 to 75%.

21. The aqueous composition as claimed in Claim 9, where a content of a volatile organic compound having a boiling point at 1 bar of less than 300°C is less than 0.5% by weight, based on said aqueous composition.

22. The aqueous composition as claimed in Claim 9, wherein a glass transition temperature of the polymer is from -50°C to +20°C.

23. The aqueous composition as claimed in Claim 9, wherein said polymer has a

glass transition temperature of from -35 to 20°C.

24. The aqueous composition as claimed in Claim 9, wherein said polymer has a glass transition temperature of from -30 to 0°C.

25. The aqueous composition as claimed in Claim 9, wherein said polymer has a glass transition temperature of from -28 to -5°C.

26. The aqueous composition as claimed in Claim 9, further comprising at least one component selected from the group consisting of a wetting agent, a dispersant, a defoamer and a preservative.

27. A method of adhering a floor covering, comprising:

applying the aqueous composition as claimed in Claim 9 to said floor covering; and

installing the floor covering.

28. The method of Claim 27, wherein said floor covering is selected form the group consisting of a carpet made of polyvinyl chloride, a floor covering made of polyvinyl chloride, a foam covering with a textile backing, a polyester nonwoven, a rubber covering, a textile covering with a backing of polyurethane foam, styrene-butadiene foam, or a secondary textile backing, a needlefelt floor covering, a polyolefin covering, and a linoleum covering.

29. A method of adhering a floor covering, comprising:

a step of applying the aqueous composition as claimed in Claim 9 to said floor covering; and

a step of installing the floor covering.

30. The method of Claim 29, wherein said floor covering is selected form the group consisting of a carpet made of polyvinyl chloride, a floor covering made of polyvinyl chloride, a foam covering with a textile backing, a polyester nonwoven, a rubber covering, a textile covering with a backing of polyurethane foam, styrene-butadiene foam, or a secondary

textile backing, a needlefelt floor covering, a polyolefin covering, and a linoleum covering.

31. A method of bonding a substrate, comprising:

applying the aqueous composition as claimed in Claim 9 to said substrate; and bonding the substrate to a carrier.

32. The method of Claim 31, wherein said substrate is selected from the group consisting of wood, concrete, a ceramic tile, and a metal substrate.

33. A method of bonding a substrate, comprising:

a step of applying the aqueous composition as claimed in Claim 9 to said substrate; and

a step of bonding the substrate to a carrier.

34. The method of Claim 33, wherein said substrate is selected from the group consisting of wood, concrete, a ceramic tile, and a metal substrate.

35. A substrate, coated with an aqueous composition as claimed in Claim 9.